Attorney Docket No. 180082-20

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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| In re Application of: | Roychowdhury |
| Serial No: | Unassigned |
| Filed: | August 17, 2001 |
| For: | **PROCESS FOR PRODUCTION OF HYDROGEN FROM ANAEROBICALLY DECOMPOSED ORGANIC MATERIALS** |
| Group Art Unit: | 1741 |
| Examiner: | Arun Phasge |

919 Third Avenue
New York, New York 10022

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to the calculation of the fees due and the issuance of a first Office Action in this application, please amend the application by deleting original claims 7-15 and 18-21, adding new claims 23-25, and amending the specification as indicated below.

**Express Mail Label No.: EL416586575US**
**Date Of Deposit: August 17, 2001**

## IN THE SPECIFICATION

Pursuant to 37 C.F.R. § 1.121(b)(2), Applicants hereby submit a clean version of the section entitled "CROSS-REFERENCE TO RELATED APPLICATION" as amended. A separate marked up version of this section under 37 C.F.R. § 1.121(b)(2)(iii) is also submitted herewith.

Please amend the application by deleting the cross referencing information on page 1, lines 1-2 and replace such deleted section with the following title and information:

**CROSS-REFERENCE TO RELATED APPLICATION**

This application is a divisional of U.S. Application Serial No. 09/472,274, filed December 27, 1999, which is a continuation-in-part of U.S. Application Serial No. 08/659,644, filed June 6, 1997, now U.S. Patent No. 6,090,266, all of which are incorporated herein by reference.

## IN THE CLAIMS

Please cancel claims 7-15 and 18-21.

Pursuant to 37 C.F.R. § 1.121(c)(3), Applicants hereby submit a clean version of the pending claim in this application for the Examiner's convenience:

1. A process for producing hydrogen from anaerobically digested organic materials comprising the steps of:

placing said materials in a reaction zone; and applying an electric potential across said materials; thereby producing hydrogen and carbon dioxide whereby said electric potential is applied occasionally after periods without application of said electric potential.

2. A process as in Claim 1 in which said occasional application of said electric potential is timed to occur at a frequency and for a period to maximize the quantity of hydrogen produced per the amount of electricity consumed.

3. A process as in Claim 1 wherein a portion of said hydrogen is used by an energy conversion means to supply said electric potential.

4. A process as in Claim 1 in which said occasional application of said electric potential is timed to occur at a frequency and for a period to maximize the quantity of hydrogen produced per the amount of electricity consumed and wherein a portion of said hydrogen is used by an energy conversion means to supply said electric potential.

5. A process as in Claim 1 in which said electric potential is applied across electrodes.

6. A process as in Claim 1 in which said electric potential is applied across multiple electrodes.

16. A process for producing hydrogen from anaerobically digested organic materials comprising the steps of:

placing said materials in a reaction zone; and applying an electric potential across said materials; thereby producing hydrogen and carbon dioxide whereby said electric potential is applied occasionally after periods without application of said electric potential whereby the amount of time required to reduce the amount of said organic materials is substantially reduced compared to the time required without application of said electric potential.

17. A process for conversion of biomass wastes into useful energy comprising the steps of: application of intermittent voltage for purposes selected from the group including depression of microorganismal activity that produces methane, enhancement of microorganismal

activity that produces hydrogen, and creation of an atmosphere within said biomass wastes that is maintained rich in hydrogen.

22. The process of claim 17 in which an inoculum means selected from the group including human sewage, medium from mature anaerobic digestion of organic materials within an occasionally applied voltage, and medium from anaerobic digestion that is conducted in the presence of increased concentrations of hydrogen wherein said inoculum is added to substantially organic materials selected from the group including manure, crop wastes, and garbage for purposes of increasing the efficiency of conversion of chemical potential energy in organic materials to hydrogen.

23. (New) A process for producing hydrogen from anaerobically digested organic materials comprising the steps of:

placing said materials in a reaction zone; and applying an electric potential across said materials; thereby producing hydrogen and carbon dioxide whereby said electric potential is applied occasionally after periods without application of said electric potential,

separating said carbon dioxide and hydrogen.

24. (New) An energy conversion process comprised of the steps of

anaerobically digesting organic materials to produce carbon dioxide and fuel selected from the group including hydrogen, methane, and mixtures of hydrogen and methane, and

separating said carbon dioxide from said fuel.

25. (New) The process of claim 17 in which said voltage is generated by a hydrogen fuel cell.

Because no claims were amended, no separate marked up version of the claims in accordance with 37 C.F.R. § 1.121(c)(3) was filed.

## REMARKS

This application is filed as a divisional of pending U.S.S.N. 09/472,274 ("the '274 application") in an effort to correct the various inventorship and distinct invention issues which appear in the '274 application. In particular, the parent '274 application contain various claims directed to inventions which were invented solely by Applicant Roychowdhury, as well as claims directed to two or more independent and distinct inventions.

The claims in this application are directed to the invention which was solely developed by Applicant Sukomal Roychowdhury, namely the process of producing hydrogen from anaerobically digested organic materials. Claims 1-6, 16, 17 and 22 are the same as those of the '274 application. New claims 23-25 are each directed to an invention within claims 7, 15 and 18 of the '274 application.

Applicant Roychowdhury respectfully submits that any claims from this or the '274 specification which are directed to the process of producing hydrogen from anaerobically digested organic materials using, inter alia, an electric potential may only be prosecuted by Applicant Roychowdhury since he is the sole inventor of that invention. Hence, the filing of this divisional application preserves the appropriate inventorship relationship for the inventions disclosed and claimed in the '274 application.

Additionally, the filing of this divisional application is warranted because the '274 application contained claims directed to two or more independent and distinct inventions. MPEP § 803. Specifically, the '274 application contained a set of claims directed to the process of producing hydrogen as invented by Applicant Roychowdhury, and a set of claims directed to the

"separation means" which was jointly invented by the named inventors Roychowdhury and McAllister.

Applicant Roychowdhury respectfully requests an interview with the Examiner to further clarify the inventorship and multiple invention issues between this and the '274 application.

No additional fee is believed due. If there are any such charges, the Examiner is authorized to charge them to Deposit Account No. 50-0540.

No new matter has been added.

By: _____

Barry Evans, Esq.
Reg. No. 22,802
Albert B. Chen
Reg. No. 41,667
Kramer Levin Naftalis & Frankel LLP
919 Third Avenue
New York, NY 10022
(212) 715-9100

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**37 C.F.R. § 1.121(b)(2)(iii)**
**MARKED UP VERSION**
**OF REPLACEMENT SECTION**
**SUBMITTED IN PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. § 1.121(b)(2), Applicants hereby submit a marked up version of the cross referencing information as amended to show the changes made relative to the previous version that section.

## IN THE SPECIFICATION

**CROSS-REFERENCE TO RELATED APPLICATION**

This application is a divisional of U.S. Application Serial No. 09/472,274, filed December 27, 1999, which is a continuation-in-part of U.S. Application Serial No. 08/659,644 filed June 6, 1996, now U.S. Patent No. 6,090,266, all of which are incorporated herein by reference.

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